

ABSTRACT

A method for removing organometallic and organosilicate residues remaining after a dry etch process from semiconductor substrates. The substrate is exposed to a conditioning solution of a fluorine source, a non-aqueous solvent, a complementary acid, and a surface passivation agent. The fluorine source is typically hydrofluoric acid. The non-aqueous solvent is typically a polyhydric alcohol such as propylene glycol. The complementary acid is typically either phosphoric acid or hydrochloric acid. The surface passivation agent is typically a carboxylic acid such as citric acid. Exposing the substrate to the conditioning solution removes the remaining dry etch residues while minimizing removal of material from desired substrate features.